

Efficiency of Vertebroplasty with Calcium Composite Bone Graft (GeneX) Combined With Pedicle Screws Fixation in Thoracolumbar Fractures

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Summary

The optimal goals of the management of the dorsolumbar fractures include establishment of a painless, balanced and stable spinal column with fusion of least number of vertebra.

Posterior spinal fixation allows for efficient realignment of the spine, direct and indirect decompression of the neural elements. Most of the kyphotic progression occurs in the initial few months after injury and after that the deformity stabilizes.

Vertebroplasty could potentially provide the anterior column support and Cement increases the strength, stiffness, and load-carrying capacity of the fractured vertebral body.

The goal of Genex is to “seal out” the intervertebral disc by aligning and lifting the fractured end plates to a (near) anatomical position and when we augmented the vertebral body with Genex we achieved central end plate reduction in most of patients preventing anterior column insufficiency with subsequent minimizing disability resulted from the fracture.

As we found in our series results kyphotic angles at the final follow up indicates good central body healing and support with minimal collapse of the fractured vertebrae at follow up period. When there is significant disruption of the load-sharing anterior column, the simple one level above and one level below short segment fixation does not ensure adequate stability, resulting in poor reduction in the kyphotic deformity and occurrence of instrument failure, we did short segment fixation plus vertebral augmentation without instrumentation failure at the final follow up.

The results from the present short-term follow-up study showed that GeneX, is a safe and low demanding adjunct to pedicle screw fixation for the treatment of traumatic thoracolumbar burst fractures, may lead to minimal residual deformity and reduce the number of secondary (anterior) procedures. Patient-reported outcomes were directly related to these positive findings as better correction of Cobb's angle leads to lesser discomfort and disability.